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ABSTRACT

The course outline has been prepared as a guide toward helping the student develop an understanding of operating principles and procedures necessary in processing data electronically. Programing techniques and concepts are presented to the student in conjunction with problems he can more readily identify and work with in applying various techniques. A prerequisite to this course is Programing and Operations Lab 2. The class meets 2 hours per day for 90 clock hours. It consists of seven blocks of instruction (orientation, assembler programs, generator programs, utility programs, student information retrieval project, documentation, and a Quinmester posttest) which are further broken down into several units each. Also included are the course goals, specific block objectives, a course outline, a 12-item bibliography, and an appendix of Quinmester posttest samples and answer keys. (Author/BP)

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AUTHORIZED COURSE OF INSTRUCTION FOR THE QUINMESTER PROGRAM

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Course Outline
DATA PROCESSING TECHNOLOGY - 8025
(Software Systems I - Assembler, Generator and Utility Programs Lab - Advanced)
Department 73 - Quin 8025.31

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DADE COUNTY PUBLIC SCHOOLS
DIVISION OF INSTRUCTION • 1973

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Course Outline

DATA PROCESSING TECHNOLOGY - 8025

(Software Systems I - Assembler, Generator and Utility Programs Lab - Advanced)

Department 73 - Quin 8025.31

county office of

VOCATIONAL AND ADULT EDUCATION

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Dade County Public Schools
Miami, Florida 33132

November, 1972

Published by the School Board of Dade County

Course Description

8025	73	Quin 8025.31	(Software Systems I - Assembler, Generator and Utility Programs Lab - Advanced)
State Category Number	County Dept. Number	County Course Number	Course Title

The students will learn the purposes and principles of assembler, generator, and utility programs and will develop higher level language programs. They will become familiar with the various aspects of administrative information required by an educational institution as they further strengthen their skills in programming.

Indicators of Success: The student must have met the objectives of Programming and Operations Lab II prior to enrollment in this course.

Clock Hours: 90

PREFACE

The following course outline has been prepared as a guide toward helping the student develop an understanding of operating principles and procedures necessary in processing data electronically. Programming techniques and concepts are presented to the student in conjunction with problems he can more readily identify and work with in applying various techniques.

The student has the opportunity to develop programs complete with documentation, flowcharts, coding and operator instructions. The ability to follow directions is cultivated throughout this course. An effort is made to arouse in the student a feeling of confidence in making decisions as to file layouts needed and print formats used in reporting. A student must have confidence enough in himself to be able to make decisions in flowcharting, coding and operating the equipment if he is to be a success in this field.

By learning the principles and purposes of assembler and generator programs, the student will find that the programmer is not burdened with keeping track of the memory locations used, their addresses, or the actual machine language for the instructions being used.

In presenting the material outlined in this course, the instructor uses lectures, presentations, student participation, demonstrations and student projects as methods of instruction. After instruction and practice on the application that has been studied, evaluation of the student's skill and understanding is made.

Students who have met the objectives of Programming and Operations Lab II should be admitted to this course.

The class meets two hours per day for 90 clock hours.

This outline lists the information the student must learn. It consists of seven blocks of instruction which are further broken down into several units each.

This outline was developed through the cooperative efforts of the instructional and supervisory personnel, the Quinmester Advisory Committee, and the Vocational Curriculum Materials Service, and has been approved by the Dade County Vocational Curriculum Committee.

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With Suggested Hourly Breakdown

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Student Responsibilities	1
Student Benefits	1
II. ASSEMBLER PROGRAMS (15 Hours)	
Functional Description of Assemblers	1
The Coding Form	1
Operating Instructions	1
III. GENERATOR PROGRAMS (15 Hours)	
Functional Description of Generator Programs	1
The Coding Form	1
Operating Instructions	2
IV. UTILITY PROGRAMS (10 Hours)	
Functional Description of Utility Programs	2
Operating Instructions	2
V. STUDENT INFORMATION RETRIEVAL PROJECT (42 Hours)	
Creating a Student Master File	2
Input Requirements	2
Output Requirements	2
Programs Required	2
VI. DOCUMENTATION (6 Hours)	
Administrative Information	2
Flowcharts	3
File Layout	3
Forms Design	3
VII. QUINMESTER POST-TEST	
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GOALS

The student must be able to demonstrate:

1. The ability to follow proper operating procedures.
2. The ability to interpret written instructions.
3. An understanding of the need for proper documentation when preparing programs.
4. The ability to develop logical solutions to programming problems.
5. A knowledge and understanding of various terms commonly used in the data processing field.
6. A knowledge and understanding of operating problems and their solutions.
7. The ability to access a file, manipulate data, and print a report in a presentable format, through programming.
8. An understanding of the programming techniques used in problem solving.
9. A basic understanding of file processing techniques in data processing.

SPECIFIC BLOCK OBJECTIVES

BLOCK I - ORIENTATION

The student must be able to:

1. Explain orally or in writing the requirements of this course.
2. Demonstrate an understanding of the safety regulations he must observe by writing an explanation of each regulation.
3. Explain orally or in writing the student benefits to be derived from this course.

BLOCK II - ASSEMBLER PROGRAMS

The student must be able to:

1. Explain orally or in writing the purpose of assembler programs.
2. Explain orally or in writing the correct use of the coding form.
3. Exhibit the ability to follow the correct procedure in assembler program operation.

BLOCK III - GENERATOR PROGRAMS

The student must be able to:

1. Explain orally or in writing the purpose of generator programs.
2. Explain orally or in writing the correct use of the coding form.
3. Exhibit the ability to follow the correct procedure in generator program operation.

BLOCK IV - UTILITY PROGRAMS

The student must be able to:

1. Explain orally or in writing the purpose of utility programs.
2. Exhibit the ability to follow the correct procedure in utility program operation.

BLOCK V - STUDENT INFORMATION RETRIEVAL PROJECT

The student must be able to:

1. Explain orally or in writing the factors to be considered in the creation of a student master file.
2. Explain orally or in writing the factors to be considered for the input and output requirements.
3. Demonstrate an understanding of the programs required by an oral or written report.

BLOCK VI - DOCUMENTATION

The student must be able to:

1. Explain orally or in writing the administrative information required.

2. Explain orally or in writing the factors to be considered with forms design, flowcharts and file layouts.

BLOCK VII - QUINMESTER POST-TEST

The student must be able to:

1. Satisfactorily complete the quinmester post-test.

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Course Outline

DATA PROCESSING TECHNOLOGY - 8025
(Software Systems I - Assembler, Generator and Utility Programs Lab - Advanced)

Department 73 - Quin 8025.31

I. ORIENTATION

A. Objectives of the Course
   1. Requirements
   2. Methods of evaluation
   3. Teaching methods

B. Student Responsibilities
   1. Care of equipment
   2. Use of materials
   3. Safety regulations
   4. Class absences

C. Student Benefits
   1. Pride in self
   2. Individual development of skills
   3. Employability

II. ASSEMBLER PROGRAMS

A. Functional Description of Assemblers
   1. General
   2. Phase I
   3. Phase II

B. The Coding Form
   1. General
   2. Coding procedures and techniques

C. Operating Instructions
   1. General
   2. Punched card assemblers
   3. Magnetic tape assemblers
   4. Disk assemblers

III. GENERATOR PROGRAMS

A. Functional Description of Generator Programs
   1. General
   2. Input/output media

B. The Coding Form
   1. General
   2. Coding procedures and techniques

C. Operating Instructions
   1. General
   2. Magnetic tape generators
   3. Disk generators

IV. UTILITY PROGRAMS

A. Functional Description of Utility Programs
   1. General
   2. Input/output media

B. Operating Instructions
   1. General
   2. Card
   3. Paper tape
   4. Magnetic tape
   5. Disk

V. STUDENT INFORMATION RETRIEVAL PROJECT

A. Creating a Student Master File
   1. Contents
   2. Structure

B. Input Requirements
   1. Data source
   2. Transaction file structure
   3. Transaction file contents
   4. Fields for validation

C. Output Requirements
   1. Updated master file
   2. Invalid items report
   3. Attendance report
   4. Grade report
   5. Other reports

D. Programs Required
   1. Validation run
   2. Update master file
   3. Attendance sort
   4. Attendance bulletin
   5. Grade cards
   6. Honor roll
   7. Student schedule

VI. DOCUMENTATION

A. Administrative Information
   1. Narrative description of system
   2. Time schedule

B. Flowcharts
   1. System
   2. Run
   3. Program

C. File Layout
   1. Transaction file
   2. Master file

D. Forms Design
   1. Report formats
   2. Source documents

VII. QUINMESTER POST-TEST

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APPENDIX

QUINMESTER POST-TEST SAMPLE

Quinmester Post-Test

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Name _____ Date _____ Score _____

Multiple Choice Test Items

Each statement needs a word or phrase to make it correct. Select the most correct answer to each and place the letter of the choice you make in the space provided on the left side of the statement.

___ 1. The purpose of an Assembler program is to:

a. Prepare a program from one or more specification cards
b. Convert a statement into one or more machine language functions
c. Convert one symbolic entry into one machine language instruction
d. None of the above

___ 2. The purpose of a Generator program is to:

a. Prepare a program from one or more specification cards
b. Convert one symbolic entry into one machine language instruction
c. Produce a standard routine that will assist in computer system use
d. Convert a statement into one or more machine language functions

___ 3. The purpose of a Utility program is to:

a. Prepare a program from one or more specification cards
b. Convert one symbolic entry into one machine language instruction
c. Produce a standard routine that will assist in computer system use
d. Convert a statement into one or more machine language functions

___ 4. Expressing an instruction in symbolic language refers to:

a. A Generator program
b. An Assembler program
c. A machine language program
d. A Utility program

___ 5. A printout of the contents of core memory is associated with:

a. A Generator program
b. An Assembler program
c. A Utility program
d. None of the above

___ 6. A master file is defined as:

a. A temporary reference file of current data
b. A main reference file of information that is somewhat permanent
c. A code that signals the last record of a file
d. All of the above

___ 7. A transaction file is defined as:

a. A temporary reference file of current data
b. A main reference file of information that is somewhat permanent
c. A code that signals the last record of a file
d. All of the above

ANSWER KEY TO QUINMESTER POST-TEST

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Multiple Choice Test Items

1. c
2. a
3. c
4. b
5. c
6. b
7. a